THE AMES Astrogram
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AMES RESEARCH CENTER, MOFFETT FIELD
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on-line at: http://george.arc.nasa.gov/dx/

Ames to host bold, new "Collaborative"

— *NASA Research Park to further statewide educational goals*

Education isn't what it used to be. And with NASA's strong commitment to assist in the training of the next generation, hopefully, it never will be.

That was never more evident than on Sept. 5 when Ames Research Center hosted a first-of-its-kind educational event. On that occasion, the University of California at Santa Cruz, San José State University and Foothill-De Anza Community College District announced an unprecedented program to form a new educational "Collaborative." Ames and the NASA Research Park are the catalysts for this dramatic departure from educational tradition.

The inspired new venture is an innovative partnership designed to address Silicon Valley's critical education and workforce needs. It will be implemented through joint research and education programs conducted at the NASA Research Park as part of Ames' proposed development plan.

"Our goal is to develop a world-class, shared-use R&D campus by partnering with industry, academia, and nonprofits in the NASA Research Park," said Henry McDonald, Ames center director. "I am thrilled that we can provide the impetus for several of our academic planning partners to form this unprecedented partnership for education programs," he said.

"While Silicon Valley is recognized worldwide for its innovation, high technology and as a catalyst for change, the area also faces a critical shortage of teachers and engineers," said Dr. M.R.C. Greenwood, Chancellor of the University of California at Santa Cruz. "We want to see what public higher education can accomplish if we focus our collective energy and resources on a shared solution. By crossing traditional boundaries, our collaboration will leverage our collective strength, provide innovative programs and services, and produce results," she said.

"The NASA-Collaborative provides us with a unique opportunity to serve the needs of this region together," said Dr. Robert L. Caret, President of San José State University. "Each of our organizations can be a stronger force if we work collectively on critical Silicon Valley needs. The NASA Research Park will provide the optimal environment for collaboration. We look forward to building a world-class facility that will house teaching, research and economic

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photos by Tom Reddy

State Senator John Vasconcellos, 13th District, addresses attendees at the recent "Collaborative" event praising NASA for its vision and facilitiation of this historic partnership.

Principals from the three collaborating institutions join Ames Center Director Henry McDonald to address questions from the media. Left to right, Dr. Robert Caret, Present, San José University; M.R.C. Greenwood, Chancellor, University of California at Santa Cruz; McDonald; and Dr. Leo Chavez, Chancellor, Foothill-DeAnza Community College District.

About 120 guests enjoy lunch catered by the Ames Café. Local community leaders spoke to the gathering expressing their support for the NASA-hosted Collaborative and for the NASA Research Park.

Center Briefs

Astronomical honeymoon continues as Observatory marks first anniversary

NASA's Chandra X-ray Observatory recently celebrated its initial year in orbit with an impressive list of firsts. Through Chandra's unique X-ray vision, scientists have seen for the first time the full impact of a blast wave from an exploding star, a flare from a brown dwarf, and a small galaxy being cannibalized by a larger one. Chandra is the third in NASA's family of great observatories, complementing the Hubble Space Telescope and the Compton Gamma Ray Observatory.

"Our goal is to identify never-before-seen phenomena, whether they're new or millions of years old. All this leads to a better understanding of our universe," said Martin Weisskopf, chief project scientist for the Chandra program at NASA's Marshall Space Flight Center, Huntsville, AL. "Indeed, Chandra has changed the way we look at the universe."

Galileo evidence points to possible water world under Europa's icy crust

NASA researchers have the strongest evidence yet that Jupiter's most mysterious moon hides a fermenting ocean of water underneath its icy coat. This evidence comes from magnetic readings by NASA's Galileo spacecraft, reported in the Friday, Aug. 25, edition of the journal Science.

Europa, the fourth largest satellite of Jupiter, has long been suspected of harboring vast quantities of water. Since life as we know it requires water, this makes Europa a prime target for the search of exobiology--life beyond Earth.

New view on the culprits of climate change published

Since climate change affects everyone on Earth, scientists have been trying to pinpoint its causes. For many years, researchers agreed that climate change was triggered by what they called "greenhouse gases," with carbon dioxide from burning of fossil fuels such as coal, oil, and gas, playing the biggest role. However, new research suggests fossil-fuel burning may not be as important in the mechanics of climate change as previously thought.

NASA funded research by Dr. James Hansen of the Goddard Institute for Space Studies, New York, NY, and his colleagues, suggests that climate change in recent decades has been mainly caused by air pollution containing non-carbon dioxide greenhouse gases, particularly tropospheric ozone, methane, chlorofluorocarbons (CFCs), and black carbon (soot) particles.

Since 1975, global surface temperatures have increased by about 0.9 degrees Fahrenheit, a trend that has taken global temperatures to their highest level in the past millennium.

Special guest lecture scheduled

Should swordfish or striped bass be served for dinner? Before selecting swordfish as your dinner entrée, you may want to consider if the fish is coming from a sustainable fishery, a fishery that does not overfish the ocean or destroy habitat. Sustainable fisheries are managed to provide plenty of fish for the future, to maintain a healthy marine habitat, and to ensure there is little bycatch. Bycatch is the wasted catch of animals other than the targeted species.

Learn how you as a consumer can make sustainable seafood selections at the lecture, "Seafood Watch," given by Dr. Steven Webster from Monterey Bay Aquarium and sponsored by the Environmental Services Office. The lecture will be held on September 20, 11:30 a.m. to 12:30 p.m., in Building 3, Moffett Training and Conference Center (Patio room.)

You may be surprised at the number of alternatives to swordfish and other depleted species. Find out how our decisions about seafood can have a positive impact on the health of our oceans.

This lecture continues with our theme of sustaining the environment. Please join us for this stimulating talk.

Dr. Steven Webster is currently a Senior Marine Biologist with the Monterey Bay Aquarium. He received his A.B., M.A.T., and Ph.D. from Stanford University. Dr. Webster plans and designs aquarium exhibits. He also plans and executes interpretive, volunteer, and internship educational programs. He conducts marine exhibit feasibility studies. Additionally, he has also conducted strategic planning for NOAA. He has prepared numerous publications. His most recent publication on "Life in Oceans" was published in the Scientific American Quarterly in the Fall of 1998.

Upcoming pool events

The Exchange Swimming Pool will be open for lap swimming Monday through Friday from 10 a.m. to 1 p.m and from 3 p.m. to 6 p.m. Weekend hours are from 10 a.m. to 12 p.m. for lap swimming. The pool will also be open for recreational swimming on weekends from 12 noon to 5:30 p.m. Everyone is invited.

Rent the pool

Rent the pool facility for your next office event or personal party today. It's a great place for BBQs, children's parties, retirements, church groups, clubs and recreational events!

NASA Masters is back

Do you want help with your stroke? Meet new people? Want a scripted workout? Come join us today in our Master's lunchtime swim! $25 annual fee. $35 monthly (includes your lap swim for free.) Offered Monday to Friday from 11:30 a.m. to 1:00 p.m.

Children's swim team

Teach children competitive swimming and techniques. Focus will be on all competitive strokes, turns and dives! Great introduction for children interested in high school swim teams. Call for specific dates and times.

Call Tana Wilson at ext. 3-8025 or stop by the pool at Building 109 (located at the corner of Westcoat and McCord).

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development programs," Caret said.

"By working together, the Collaborative will leverage its collective talent, resources and intellectual leadership to solve the valley's increasing demand for education and workforce development," said Dr. Leo Chavez, Chancellor of the Foothill-De Anza Community College District. "In terms of work-force preparation, higher education needs to go the extra mile to meet the needs of our community, especially to prepare underrepresented groups and minorities for jobs in the high-tech Silicon Valley, " he said.

Ames plans to host the "Collaborative" as one component of its recently announced Environmental Impact Statement (EIS) process under the National Environmental Policy Act (NEPA) regulations to develop the land at Moffett Field under NASA ownership. The proposed developments include the NASA Research Park, in which the academic, industry and non-profit partners plan to conduct their research and education programs

BY MICHAEL MEWHINNEY AND DAVID MORSE

NASA tunnels test tennis balls; expands student minds

NASA aerodynamics technology may help create more competitive tennis matches between the world's top players while stimulating student interest in science and engineering.

In recent years, improved racquet technology and faster surfaces have led to an emphasis on the serve and shorter rallies in professional tennis matches. To slow the game, the International Tennis Federation, London, England, recently approved the testing of a new ball, 6.5 percent larger in diameter, during exhibition play. They also reviewed data of Dr. Rabi Mehta and the wind tunnels at Ames Research Center.

"The concern is that today's top pros can serve a tennis ball at almost 150 miles per hour. On faster surfaces, such as Wimbledon, that ensures an increasing number of shorter rallies and tie-breaker sets," said Mehta, a world authority on the aerodynamics of sports balls. "A larger ball will slow things down; the trick is to figure out how much. That was the objective of experimental testing conducted in England and at Ames," he said.

To inspire school students to learn physics and engineering, Mehta began working with an engineering consulting firm, Cislunar Aerospace, Inc., Napa, CA, about two years ago. Together, they demonstrated tennis ball aerodynamics to students in order to pique their interest. Recently, Mehta explained the complex airflow around big and small tennis balls that he and his students have observed to a Tennis Federation convention in Roehampton, England. In particular, he noted, wind tunnel tests have shown that 'fuzz' affects the flight of a tennis ball far more than previously believed.

"Cislunar got a NASA grant from the Learning Technologies Project to develop a Web site for kids from kindergarten through grade eight (http://wings.ucdavis.edu/Tennis)," Mehta said. Cislunar CEO, Dr. Jani Macari Pallis, made an 'Aeronautics Internet Textbook' that includes a tennis section in the sports ball area, the most popular part of the Web site, according to Mehta. "The first part of the student work was a flow visualization study of a tennis ball in a NASA-Ames 3-foot by 4-foot smoke tunnel two years ago. The data from those tests are on the web site.

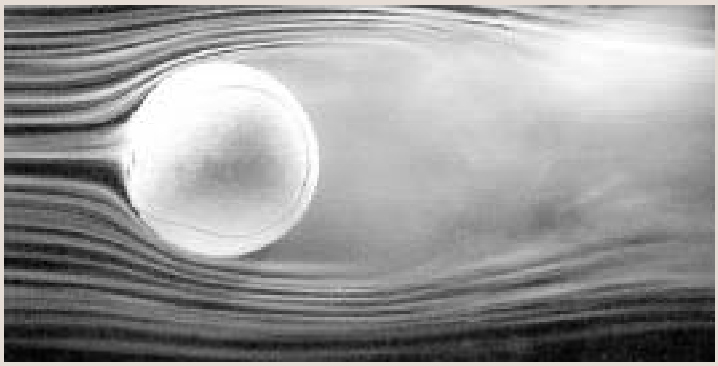
Mainly, we performed the study to show the kids the basic principles of fluid mechanics," Mehta added. Fluid mechanics is the study of fluid flow (gas or liquid), its properties, characteristics and behavior.

More recently, the investigators measured the drag on regular as well as new, larger tennis balls over a wide range of flow speeds in the NASA-Ames 15-inch by 15-inch wind tunnel. "With the help of data collected by two college summer students, I think, for the first time, I understand the full aerodynamics of a tennis ball in flight," Mehta said.

Initially, we could not determine why the drag on tennis balls is so much higher than that on other sports balls, he said. "Then we realized that the 'fuzz' on the ball plays a much larger role in the aerodynamics than had been anticipated in the past," Mehta said.

Rabi Mehta compares an existing USTA-approved tennis ball to its larger, experimental cousin.

"If you have a smooth ball, such as a ping pong ball, it produces a large air wake, like that of a motor boat. The ball's large wake creates drag that slows the ball's flight," Mehta said. "If you add roughness, like the dimples on a golf ball, air disturbance near the ball's surface actually helps produce a smaller air wake that creates less air drag, and the ball can go farther," he explained. A smooth golf ball might only go about 100 yards compared to the 300 yards covered by today's dimpled golf balls, he added.



photos by Dominic Hart

Aerodynamic flow around a tennis ball demonstrated in Ames Smoke tunnel.

"Even though a tennis ball does not have a smooth surface, you get a bigger wake because of the very rough surface, plus the effect of additional drag from each fuzz filament, which I have termed fuzz drag," he said. "Fuzz drag makes the aerodynamics of the tennis ball even more interesting since the fuzz elements change orientation with increased velocity and the fuzz wears off during play."

Mehta said the complex interactions of air density, air 'stickiness,' air speed and physical size and surface roughness, normally are major factors in determining how sports balls fly through the air.

Air is a bit viscous or 'sticky,' resulting in 'skin-friction' drag, he explained. When a smooth ball flies through air at a slower speed, a layer of slow-moving air forms around the ball's front. The sticky, smooth-flowing air layer separates from the ball's surface, forming a wake that begins in a circle like the edge of a grapefruit that has been sliced in half. The wake behind the smooth ball is almost as wide as the ball, creating a great deal of 'pressure' drag that adds to the sticky air drag on the front side of the flying ball.

Surface roughness, such as dimples on a golf ball, produce turbulence in the slow-moving air close to the ball and the more energetic layer separates much later, thus leading to a smaller wake.

"The two types of flow can easily be demonstrated at home," Mehta said. "Go to a water faucet, turn it on at a slow rate, and you get a smooth stream of water almost to the bottom of the sink. Increase the flow rate, and you get a splashy, chaotic flow; this is turbulent flow," he concluded.

BY JOHN BLUCK

New night vision goggles help helicopter pilots see wider view

Military helicopter pilots can view areas in the dark nearly three times wider when they wear new prototype night-vision goggles (NVGs) instead of current equipment, according to engineers at Ames.

photo by Eric James

Helicopter pilot wearing 100-degree field of view, night vision goggles. Pilot is sitting in Cobra helicopter.

The Army Aviation and Missile Command's Aeroflightdynamics Directorate and Ames recently conducted a joint test of the new goggles at Moffett Federal Airfield.

Four test pilots looked like science fiction "cyborgs" when they donned the night-vision goggles for evening test flights with an Army/NASA Cobra helicopter in April, May and June. The goggles were developed for the Air Force by Night Vision Corp., Lincolnwood, IL, and were loaned to Ames for the experiment. The four evaluation pilots came from the U.S. Army Aviation Technical Test Center at Ft. Rucker, AL.

"We flew the tests to measure the performance of the new prototype goggles that have a horizontal field of view of 100 degrees as compared to the standard military night vision goggles that have a 40-degree field of view," said Barry Lakinsmith, Army chief of the Flight Control and Cockpit Integration Branch.

"The new goggles have two vision tubes for each eye instead of one per eye that standard NVGs have; this results in a wider field of vision," said principal investigator Zoltan Szoboszlay, resident Army researcher at Ames. "In both old and new versions, image intensifier tubes and their lenses provide a tremendous contrast improvement to scenes, boosting ambient light tens of thousands of times."

"The purpose of the test was to see if there were differences in the performance, workload and situational awareness of the pilots during the two test conditions: AVS-9 (current issue goggles) and the panoramic goggles. Three standard helicopter maneuvers were flown during the test," Szoboszlay said. "We measured performance with a carrier phase tracking global positioning system device, which measured how close the pilot was to the landing and hover targets."

The researchers also measured pilot head movements to see if pilots had to move their heads less when wearing the new panoramic night vision goggles as compared to standard goggles. In addition, the engineers evaluated how well the test pilot was able to maintain altitude and "heading," or direction of flight.

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SAFETY SNAPSHOTS

This feature is one in a series intended to inform the Ames community about facets of Ames' Safety and Environmental programs

Ames Ergonomics Program

PROFILE

An Occupational Health program that minimizes the risk of cumulative trauma disorders (CTDs) in three ways:

- education/training
- task and workstation analysis
- consultation/recommendation of ergonomic equipment and furniture

Although OSHA has not yet published an Ergonomics Standard, Ames has begun to follow the proposed program to better protect employees. Ergonomic injuries, such as repetitive motion strains and tendinitis, are now recognized as leading causes of lost-time injuries and Workers Compensation claims.

CLOSE-UP

Miriam Glazer, Ames Health and Wellness Program Manager, says that the Ergonomics program is especially gratifying because with some practical knowledge and a little help, employees can evaluate their own workstations. They can make the appropriate changes, sometimes small ones, and have lasting results. Simple changes can go a long way in preventing workplace injuries, and they don't have to be expensive. It is also important that employees seek medical attention at Ames Health Unit as soon as they are experiencing any pain. Don't ignore the symptoms. Pain left untreated will often progress into full-blown problems that take months to heal.

Miriam researches new ergonomic accessories and has made available many items, including gel-filled wrist rests and mouse bridges, in Ames Stores Stock. Employees can try out these and additional items, such as ergonomic chairs and keyboards, different sizes and styles of mice, and adjustable workstations, when they attend her Office Ergonomics class or visit the Ergonomics Demo Library in N218 room 210.

For more information, go to chapter 26, Ames Safety and Health Manual under Safety at http://q.arc.nasa.gov.

VPP kickoff - Ames begins OSHA certification effort

Ames and OSHA will become partners in sustaining safety and health excellence when Ames achieves the new goal of STAR certification in OSHA's Voluntary Protection Program, known as VPP. On October 19, Safety Stand-down Day, all employees will learn about this initiative from their Directorate leadership and the Safety Office.

Ames' goals for safety and VPP participation include continuing improvement of workplace safety and health, increasing employee involvement, and building communication and cooperation between the union, management, and employees at every level. These goals reflect our principle "Safety is Our Most Important Value."

OSHA certifies employers at the STAR level when illness/injury rates are low and key safety elements (including management leadership and employee involvement, worksite hazard analysis, hazard prevention and control, and safety and health training) meet high standards. These elements are already core components of Ames' Safety Accountability Program. The difference is the level of management commitment and employee participation. VPP also recognizes that where government employees and contractors work together, safety standards apply to all.

Ames' plan to meet or exceed VPP qualifications will be disclosed on October 19. Information, events, and updates will be posted at the Safety, Health and Medical Services Web site at http://q.arc.nasa.gov.

Safety and Quality Week set for October 16 to 20

To kick off Safety and Quality Week events, the Safety, Environmental and Mission Assurance Office is pleased to present Astronaut Mike Mullane. Colonel Mullane will be the keynote speaker on Monday October 16 at 9 a.m. in the Main Auditorium, Building N-201. The subject of this keynote presentation will be "Lessons from Challenger." Following Colonel Mullane's presentation, there will be an autograph opportunity from 10:30 a.m. to 11:00 a.m. The presentation, which cannot be videotaped, will be shown on Center via Vid-Net so that Colonel Mullane's message can reach all Center employees. This will accomodate those unable to attend in person due to limited seating capacity in the Auditorium.

Colonel Mullane is a 1967 graduate of West Point with a Master's of Science Degree in Aeronautical Engineering. Commissioned by the Air Force, he completed 150 combat missions in Vietnam. In 1978, Colonel Mullane was selected among the first group of Shuttle astronauts and flew three space missions. He has been inducted into the International Space Hall of Fame and is the recipient of many awards, including the Air Force Distinguished Flying Cross. Since his retirement from NASA, Colonel Mullane has established himself as a professional speaker, has written a novel, "Red Sky" and a children's book "Liftoff! An Astronaut's Dream." He has also served as a host for Inside Space, a USA Network TV program. Colonel Mullane is not a newcomer to Ames. His compelling presentations have provided Center employees and managers with powerful messages that hit home to audiences.

Following Colonel Mullane's presentation, the week's events will include: Safety Stand-down Day, the Center's two-day Quality Forum, Chili Cook-Off, Center Fun Run, a wide offering of Safety and Health classes, Voluntary Protection Program kick-off and orientation programs, Quasar Awards, assorted vendor demonstrations and safety awareness information.

Mark your calendars, and don't forget to get those tasty Chili recipes ready for the 5th Annual Chili Cook-off competition! The point of contact for this event is Chaz Czaplicki at ext 4-6942 or via email at cczaplicki@mail.arc.nasa.gov.

Astronaut Colonel Mullane

Discount theater tickets available

The NASA Exchange Ticket Office is now selling Silver Movie Tickets for any AMC theater. Silver Movie Tickets are discount tickets ($6 each) and are valid for any show except special engagements. To comply with studio contractual obligations, discount tickets may not be used during the first two weeks of most new releases.

A step up from the Silver Movie Ticket, is the Gift of Entertainment. It's the ultimate gift package for that special movie buff. It includes coupons for two unrestricted admission tickets, (also good for special engagements), two small drinks and one medium popcorn. A nice gift package in a special giving envelope! All for $22. It's a little bit of everything and a whole lot of fun. It's great to use as a holiday gift for families, friends and coworkers; as employee appreciation and as customer gifts. Movie discount tickets are perfect for any occasion. Tickets are valid nationwide! You'll save big bucks at the Ames Exchange Ticket Office.

To purchase a Gift of Entertainment or Silver Movie Ticket, stop by the Ticket Office located in Bldg. 19, Room 1011 (on the Post Office side of Bldg. 19) or call ext. 4-0818.

Seminar announcement

Employees at Ames are invited to attend two seminars at the Musculoskeletal Biomechanics Laboratory starting at 1 pm on September 27 in Bldg. N213, room 261 (second floor conference room). The first presentation, by Dr. Susan M. Bowley, encompasses her Ph.D. Dissertation defense and is entitled "Age-related differences in physical activity level and bone density in humans." The second presentation, which will immediately follow the first, by Tammy Cleek, encompasses part of her Ph.D. Oral Exam and is entitled "Effect of age and activity level on bone mass distribution."

Grants from NASA and the National Osteoporosis Foundation partially supported this work. This research would not have been possible without the support of individuals, including volunteer subjects, at Ames and in the surrounding communities.

Ames History book ceremony held

A ceremony to unveil the recently completed book titled "Atmosphere of Freedom" was held on August 29 in the main auditorium. The book celebrates Ames' 60 year history of accomplishment and was commissioned as a tribute to the Center on the occasion of our 60th birthday on December 20, 1999.

During the program, attendees had the opportunity to view two videos shown at the Ames 60th anniversary celebration dinner. One honors recent inductees into the Ames Hall of Fame; the other documents Ames 60 year history of accomplishment. In addition, Center Director Henry McDonald offered some thoughts on Ames future and Glenn Bugos, author of the history book, read two selections from his work.

Sample copies of the book were available for preview following the ceremony. Distribution of copies of the book has begun.

The Center intends to provide a commemorative copy to all full-time on-site civil servants.

Due to limitations of supply, additional copies will be made available to interested parties at a nominal charge at a later date and location to be announced.

photo by Jonas Dino

Ames Center Director Dr. Henry McDonald at the Ames History Book unveiling event held August 29.

photo by Dominic Hart

Glenn Bugos, author of the Ames hHstory book, signs a copy of the text as he chats with ceremony attendees.

photo by Astrid Terlep

Ames employees chat in the newly redecorated lobby of Bldg. 200 following the Ames History book unveiling ceremony.

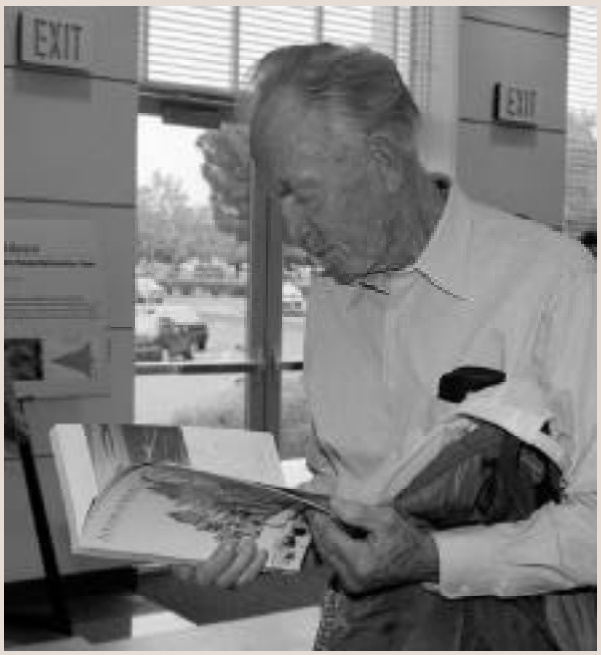

photo by Dominic Hart

Seth Anderson, long-time Ames employee and senior scientist in the Aviation Systems Research, Technology and Simulation Division, checks out the new Ames manuscript.

New night vision goggles help helicopter pilots see wider view

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"We've developed a method of testing new night-vision devices, one of the aims of NASA's Rotorcraft Program," Szoboszlay said. "We're trying to improve pilot safety through the use of night-vision devices."

Military pilots have been using standard night-vision goggles for about 25 years. In another effort, Army-Ames engineers are also working with the Federal Aviation Administration (FAA) to evaluate adapting night vision-goggles for limited civilian aviation uses by rescue and police helicopter pilots, among others. Two FAA pilot/engineers also flew demonstration flights in the Cobra using the goggles.

"What we learn from the wide-vision goggles may prove useful to developing minimum operating and performance standards for limited civil pilot use, but ultimately that is the FAA's call," Lakinsmith said.

BY JOHN BLUCK

Employment Open House

ACS (formerly Intellisource) and the SAIC team are pleased to announce the successful award of the "Outsourcing Desktop Initiative for NASA (ODIN)" contract at Ames, Langley, Glenn and Dryden Research Centers. In support of this award, we are seeking qualified individuals to join the ODIN team at Ames for the following positions: telecommunication engineers; system administrators, customer outreach professionals; hardware engineering; system DBA; service delivery-PC/Mac/UNIX; software engineering; business management; acquisition/finance; automated software distribution; security incidence and office administration.

An Open House will take place on Wednesday, September 13, from 11:30 a.m. until 5:30 p.m., and Thursday, September 14, from 11:30 a.m. until 5:30 p.m. The location will be in Building 3 the MTCC at Ames.

Managers from ACS, SAIC and the other team members will be available for preliminary interviews. Bring a copy of your resume with you. All incumbents are encouraged to stop by and meet with the management team. Refreshments will be provided.

If you cannot attend, please forward your resume, including position(s) of interest to ACS, fax (301) 459-2018, e-mail bconnor@intellisource.com, or SAIC, fax (800) 650-3562;

Email jobs@saic.com Please reference Code R/ARC when sending resumes to SAIC. EOE.

Earn Golden Rewards

Now is the time for Ames employees to earn Golden Rewards. For a limited time only, Golden Bay Federal Credit Union will buy you lunch at McDonald's when you add any of these primary services to your Golden Bay account: checking, home banking/ Bill Payer, direct deposit, or CheckMate ATM/ VISA Check Card. For even greater rewards, add any or all of these secondary services to your Golden Bay account: certificate, IRA, asset management account, or overdraft loan protection (VISA or line-of-credit) and receive five gold coins for each additional service. You can receive up to 20 gold coins!

So visit your local Golden Bay Federal Credit Union branch or call (800) 969-0660 for details and collect your Golden Rewards. Some restrictions may apply.

Astrogram deadlines

All Ames employees are invited to submit articles relating to Ames projects and activities for publication in the *Astrogram*. When submitting stories or ads for publication, submit your material, along with any questions, in MS word by e-mail to: astrogram@mail.arc.nasa.gov on or before the deadline.

Deadline	*Publication*
Fri, Sept 22	*Mon, Oct 2*
Fri, Oct 6	*Mon, Oct 16*

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